

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

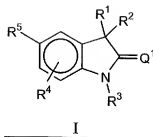
Listing of Claims:

1(Canceled).

2(Currently Amended). The method according to claim 41, wherein said compound of formula I and said selective estrogen receptor modulator are delivered in a single composition.

3(Currently Amended). The method according to claim 41, wherein said compound of formula I and said selective estrogen receptor modulator are delivered separately.

4(Currently Amended). The A method of inducing contraception comprising delivering to a female of child-bearing age a composition comprising a compound of formula I in a regimen which involves delivering a pharmaceutically effective amount of one or more according to claim 1, wherein said selective estrogen receptor modulator is selected from the group consisting of EM-800, EM-652, raloxifene hydrochloride, arzoxifene, lasofoxifene, droloxifene, tamoxifen citrate, 4-hydroxytamoxifen citrate, clomiphene citrate, toremifene citrate, pipendoxifene, idoxifene, levormeloxifene, centchroman, nafoxidene, and bazedoxifene to said female, wherein formula I is:



wherein:

R^1 and R^2 are joined to form a ring selected from the group consisting of $-\text{CH}_2(\text{CH}_2)_n\text{CH}_2-$, $-\text{CH}_2\text{CH}_2\text{C}(\text{CH}_3)_2\text{CH}_2\text{CH}_2-$, $-\text{O}(\text{CH}_2)_m\text{CH}_2-$, $-\text{O}(\text{CH}_2)_p\text{O}-$, $-\text{CH}_2\text{CH}_2\text{OCH}_2\text{CH}_2-$, $-\text{CH}_2\text{CH}_2\text{N}(\text{H})\text{CH}_2\text{CH}_2-$, and $-\text{CH}_2\text{CH}_2\text{N}(\text{alkyl})\text{CH}_2\text{CH}_2-$;

m is an integer from 1 to 4;

n is an integer from 1 to 5;

p is an integer from 1 to 4;

or R^1 and R^2 form a double bond to $\text{C}(\text{CH}_3)_2$, $\text{C}(\text{cycloalkyl})$, O , or $\text{C}(\text{cycloether})$;

R^3 is selected from the group consisting of H , OH , NH_2 , C_1 to C_6 alkyl, substituted C_1 to C_6 alkyl, C_3 to C_6 alkenyl, substituted C_3 to C_6 alkenyl, alkynyl, substituted alkynyl, and COR^A ;

R^A is selected from the group consisting of H , C_1 to C_3 alkyl, substituted C_1 to C_3 alkyl, C_1 to C_3 alkoxy, substituted C_1 to C_3 alkoxy, C_1 to C_3 aminoalkyl, and substituted C_1 to C_3 aminoalkyl;

R^4 is selected from the group consisting of H , halogen, CN , NH_2 , C_1 to C_6 alkyl, substituted C_1 to C_6 alkyl, C_1 to C_6 alkoxy, substituted C_1 to C_6 alkoxy, C_1 to C_6 aminoalkyl, and substituted C_1 to C_6 aminoalkyl;

R^5 is a five membered heterocyclic ring having 1, 2, or 3 heteroatoms selected from the group consisting of O , S , SO , SO_2 and NR^6 and having one or two independent substituents from the group consisting of H , halogen, CN , NO_2 , C_1 to C_4 alkyl, substituted C_1 to C_4 alkyl, C_1 to C_3 alkoxy, substituted C_1 to C_3 alkoxy, C_1 to C_3 aminoalkyl, substituted C_1 to C_3 aminoalkyl, COR^D , CSR^D , and NR^ECOR^D ;

R^D is H, NH_2 , C_1 to C_3 alkyl, substituted C_1 to C_3 alkyl, aryl, substituted aryl, C_1 to C_3 alkoxy, substituted C_1 to C_3 alkoxy, C_1 to C_3 aminoalkyl, or substituted C_1 to C_3 aminoalkyl;

R^E is H, C_1 to C_3 alkyl, or substituted C_1 to C_3 alkyl;

R^6 is H, C_1 to C_3 alkyl, substituted C_1 to C_3 alkyl, or C_1 to C_4CO_2 alkyl;

Q^1 is S;

or a pharmaceutically acceptable salt, tautomer, metabolite, or prodrug thereof.

5(Currently Amended). The method according to claim 44, wherein said compound is delivered at a daily dosage of about 0.1 to about 50 mg.

6(Currently Amended). The method according to claim 44, wherein said regimen comprises delivering said composition daily for 1 to about 21 days, wherein said regimen is a cycle which is repeated monthly.

7(Currently Amended). The method according to claim 44, wherein said selective estrogen receptor modulator is delivered at a daily dosage of about 0.2 to about 100 mg.

8(Canceled).

9(Currently Amended). The method according to Claim 44, wherein R^1 and R^2 are joined to form the $-CH_2(CH_2)_nCH_2-$ ring; n is 3; R^3 and R^4 are H; R^5 is the five membered ring having the structure:



U is O, S, or NR^6 ,

X' is selected from the group consisting of halogen, CN, NO₂, CONH₂, CSNH₂, COR^B, CSR^B, C₁ to C₃ alkyl, and C₁ to C₃ alkoxy;

R^B is C₁ to C₃ aminoalkyl or substituted C₁ to C₃ aminoalkyl, wherein said aminoalkyl is NH(alkyl) or N(alkyl)₂;

Y' is selected from the group consisting of H, halogen, and C₁ to C₄ alkyl, wherein said halogen is F.

10-11(Canceled).

12(Currently Amended). The method according to claim 41, wherein R¹ and R² are joined to form a ring selected from the group consisting of -CH₂(CH₂)_nCH₂-, -CH₂CH₂C(CH₃)₂CH₂CH₂-, -O(CH₂)_mCH₂-, -O(CH₂)_pO-, -CH₂CH₂OCH₂CH₂-, -CH₂CH₂N(H)CH₂CH₂-, and -CH₂CH₂N(alkyl)CH₂CH₂-; R³ is H.

13(Currently Amended). The method according to claim 41, wherein R³ is H; and Q¹ is S or NR⁷.

14(Currently Amended). The method according to claim 41, wherein said compound is selected from the group consisting of 5'-(3-Chlorophenyl)spiro[cyclohexane-1,3'-[3H]indol]-2'(1H)-thione, 3-(1',2'-Dihydro-2'-thioxospiro[cyclohexane-1,3'-[3H]indol]-5'-yl)benzonitrile, 4-(1',2'-Dihydro-2'-thioxospiro[cyclohexane-1,3'-[3H]indol]-5'-yl)-2-thiophenecarbonitrile, 3-(1,2-Dihydro-2-thioxospiro[cyclohexane-1,3-[3H]indol]-5-yl)-5-fluorobenzonitrile, 4-Methyl-5-(1,2-dihydro-2-thioxospiro[cyclohexane-1,3-[3H]indol]-5-yl)-2-thiophenethioamide, 5-(1,2-Dihydro-2-thioxospiro[cyclopentane-1,3-[3H]indol]-5'-yl)-1H-pyrrole-2-carbonitrile, 5-(1,2-Dihydro-2-thioxospiro[cyclohexane-1,3-[3H]indol]-5-yl)-1-(tert-butoxycarbonyl)-pyrrole-2-carbonitrile, 5-(1,2-Dihydro-2-thioxospiro[cyclohexane-1,3-[3H]indol]-5-yl)-1-H-pyrrole-2-carbonitrile, 5-(2'-thioxospiro[cyclohexane-1,3'-[3H]indol]-5'-yl)-1-methylpyrrole-2-carbonitrile, 5-(1,2-Dihydro-2-thioxospiro[cyclopentane-1,3-[3H]indol]-5-yl)-

3-thiophenecarbonitrile, 5-(1,2-Dihydro-thioxospiro[cyclopentane-1,3-[3H]indol]-5-yl)-2-thiophenecarbonitrile, 5-(3-Fluoro-4-methoxyphenyl)spiro[cyclohexane-1,3-[3H]indol]-2(1H)-thione, 5-(2-Amino-5-pyrimidinyl)spiro[cyclohexane-1,3-[3H]indol]-2(1H)-thione, 3-(1,2-Dihydro-2-thioxospiro[cyclopentane-1,3-[3H]indol]-5-yl)-5-fluorobenzonitrile, 5-(3-chlorophenyl)-3,3-dimethyl-1,3-dihydro-2H-indole-2-thione, 3-Benzyl-5-(3-chlorophenyl)-3-methyl-1,3-dihydro-2H-indole-2-thione, 4-(3,3-dimethyl-2-thioxo-2,3-dihydro-1H-indol-5-yl)-2-furonitrile, 5-(3-methoxyphenyl)-3,3-dimethyl-1,3-dihydro-2H-indole-2-thione, 3-(1,2-Dihydro-2-thioxospiro[cyclohexane-1,3-[3H]indol]-5-yl)-4-fluorobenzonitrile, 5-(1,2-Dihydro-2-thioxospiro[cyclohexane-1,3-[3H]indol]-5-yl)-3-pyridinecarbonitrile, 5-(3,4-Difluorophenyl)spiro[cyclohexane-1,3-[3H]indol]-2(1H)-thione, 5-(5-Chloro-2-thienyl)spiro[cyclohexane-1,3-[3H]indol]-2(1H)-thione, 5-(1,2-Dihydro-2-thioxospiro[cyclohexane-1,3-[3H]indol]-5-yl)-3-furancarbonitrile, 5-(3-Chloro-4-fluorophenyl)spiro[cyclohexane-1,3-[3H]indol]-2(1H)-thione, 5-(3-Chloro-5-fluorophenyl)spiro[cyclohexane-1,3-[3H]indol]-2(1H)-thione, 5-(3,5-Difluorophenyl)spiro[cyclohexane-1,3-[3H]indol]-2(1H)-thione, 5-(1,2-Dihydro-2-thioxospiro[cyclohexane-1,3-[3H]indol]-5-yl)-4-propyl-2-thiophenecarbonitrile, 5-(3-Fluoro-4-nitrophenyl)spiro[cyclohexane-1,3-[3H]indol]-2(1H)-thione, 4-(1,2-Dihydro-2-thioxospiro[cyclohexane-1,3-[3H]indol]-5-yl)-2-furancarbonitrile, 5''-(3-Chlorophenyl)spiro[cyclobutane-1,3''-[3H]indol]-2''(1''H)-thione, 5''-(2-Chlorophenyl)spiro[cyclohexane-1,3''-[3H]indol]-2''(1''H)-thione, 5''-(4-Chlorophenyl)spiro[cyclohexane-1,3''-[3H]indol]-2''(1''H)-thione, 5-(1'',2''-Dihydro-2''-thioxospiro[cyclohexane-1,3''-[3H]indol]-5''-yl)-4-methyl-2-thiophenecarbonitrile, 5-(1'',2''-Dihydro-2''-thioxospiro[cyclohexane-1,3''-[3H]indol]-5''-yl)-2-thiophenecarbonitrile, 5''-(3-Fluorophenyl)spiro[cyclohexane-1,3''-[3H]indol]-2''(1''H)-thione, 5-(3-Hydroxyphenyl)spiro[cyclohexane-1,3-[3H]indol]-2(1H)-thione, 5-(3-chlorophenyl)-3,3-diethyl-1,3-dihydro-2H-indole-2-thione, 5-(4-Fluoro-3-(trifluoromethyl)phenyl)spiro[cyclohexane-1,3-[3H]indol]-2(1H)-thione, 4-(1,2-Dihydro-2-thioxospiro[cyclohexane-1,3-[3H]indol]-5-yl)-2-fluorobenzonitrile, 5-(1,2-Dihydro-2-thioxospiro[cyclohexane-1,3-[3H]indol]-5-yl)-4-n-butyl-2-thiophenecarbonitrile, 5-(3-

Fluoro-5-methoxyphenyl]spiro[cyclohexane-1,3'-[3H]indol]-2(1H)-thione, 5-(3-Chlorophenyl)-N-hydroxyspiro[cyclohexane-1,3'-[3H]indol]-2-amine, N-(Acetyloxy)-5'-(3-chlorophenyl)spiro[cyclohexane-1,3'-[3H]indol]-2''amine, 5'-(3-Fluorophenyl)spiro[cyclohexane-1,3'-[3H]indol]-2'(1'H)-one oxime, 5'-(2-Fluorophenyl)spiro[cyclohexane-1,3'-[3H]indol]-2'(1'H)-one oxime, 5'-(4-Fluorophenyl)spiro[cyclohexane-1,3'-[3H]indol]-2'(1'H)-one oxime, 5'-(3,4-difluorophenyl)spiro[cyclohexane-1,3'-[3H]indol]-2'(1'H)-one oxime, 5'-(3-methoxyphenyl)spiro[cyclohexane-1,3'-[3H]indol]-2'(1'H)-one oxime, 5'-(3-nitrophenyl)spiro[cyclohexane-1,3'-[3H]indol]-2'(1'H)-one oxime, 5'-(3-eyanophenyl)spiro[cyclohexane-1,3'-[3H]indol]-2'(1'H)-one oxime, 3-(1',2'-Dihydro-2'-(hydroxyimino)spiro[cyclohexane-1,3'-[3H]indol]-5'-yl)-5-fluorobenzonitrile, 5-(Spiro[cyclohexane-1,3'-[3H]indol]-2'-(hydroxyimino)-5'-yl)-4-methyl-2-thiophenecarbonitrile, 5-(Spiro[cyclohexane-1,3'-[3H]indol]-2'-(hydroxyimino)-5'-yl)-2-thiophenecarbonitrile, 4-(Spiro[cyclohexane-1,3'-[3H]indol]-2'-(hydroxyimino)-5'-yl)-2-thiophenecarbonitrile, 5-(Spiro[cyclohexane-1,3'-[3H]indol]-2'-(hydroxyimino)-5'-yl)-1H-pyrrole-1-methyl-2-carbonitrile, 5-(spiro[cyclohexane-1,3'-[3H]indol]-2'-(hydroxyimino)-5'-yl)-1H-pyrrole-2-carbonitrile, 4-(Spiro[cyclohexane-1,3'-[3H]indol]-2'(acetoxylimino)-5'-yl)-2-thiophenecarbonitrile, 3-Fluoro-N'-hydroxy-5-(2'-(hydroxyamino)spiro[cyclohexane-1,3'-[3H]indol]-5'-yl)benzenecarboximidamide, N'-Hydroxy-5-(spiro[cyclohexane-1,3'-[3H]indol]-2'-(hydroxyimino)-5'-yl)-4-methyl-2-thiophenecarboximidamide, N'-Hydroxy-4-(spiro[cyclohexane-1,3'-[3H]indol]-2'-(hydroxyimino)-5'-yl)-2-thiophenecarboximidamide, N'-Hydroxy-5-(spiro[cyclohexane-1,3'-[3H]indol]-2'-(hydroxyimino)-5'-yl)-2-thiophenecarboximidamide, 5'-(3-Chlorophenyl)spiro[cyclohexane-1,3'-[3H]indol]-2'-ylideneeyanamide, 5'-(3-Cyano-5-fluorophenyl)spiro[cyclohexane-1,3'-[3H]indol]-2'-ylideneeyanamide, 5'-(5-Cyano-1H-pyrrol-2-yl)spiro[cyclohexane-1,3'-[3H]indol]-2'-ylideneeyanamide, 5'-(5-Cyano-thiophen-2-yl)spiro[cyclohexane-1,3'-[3H]indol]-2'-ylideneeyanamide, 5'-(5-Cyano-methyl-thiophen-2-yl)spiro[cyclohexane-1,3'-[3H]indol]-2'-ylideneeyanamide, 5'-(5-Cyano-thiophen-3-yl)spiro[cyclohexane-1,3'-[3H]indol]-2'-ylideneeyanamide, 3-(2'-

Cyanomethylene-spiro[cyclohexane-1,3'-[3H]indol]-5'-yl)-5-fluoro-benzonitrile, 5-(2'-Cyanomethylene-spiro[cyclohexane-1,3'-[3H]indol]-5'-yl)-1H-pyrrole-2-carbonitrile, 5-(2'-Cyanomethylene-spiro[cyclohexane-1,3'-[3H]indol]-5'-yl)-1-methyl-1H-pyrrole-2-carbonitrile, 5-(2'-Cyanomethylene-spiro[cyclohexane-1,3'-[3H]indol]-5'-yl)-thiophene-2-carbonitrile, 5-(2'-Cyanomethylene-spiro[cyclohexane-1,3'-[3H]indol]-5'-yl)-4-methyl-thiophene-2-carbonitrile, and 4-(2'-Cyanomethylene-spiro[cyclohexane-1,3'-[3H]indol]-5'-yl)-thiophene-2-carbonitrile, or and a pharmaceutically acceptable salt, tautomer, metabolite, or prodrug thereof.

15-43(Canceled).